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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/523,984	02/08/2005	Jin-Koo Chung	21C.0324	1578

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CANTOR COLBURN, LLP  
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EXAMINER
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MACCHIAROLO, PETER J

ART UNIT	PAPER NUMBER
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2879

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/21/2006	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/523,984	<b>Applicant(s)</b> CHUNG ET AL.	
	<b>Examiner</b> Peter J. Macchiarolo	<b>Art Unit</b> 2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 07 March 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 11-14 is/are allowed.
- 6) ☒ Claim(s) 1-10, 15-23, 25 and 26 is/are rejected.
- 7) ☒ Claim(s) 24 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 February 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>08/11/2005</u> .  | 6) <input type="checkbox"/> Other: _____                          |

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## **DETAILED ACTION**

### ***Information Disclosure Statement***

The information disclosure statement (IDS) submitted on 08/11/2005 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

### ***Specification***

The abstract of the disclosure is objected to because it does not contain the proper language. Correction is required. See MPEP § 608.01(b).

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

***Claim Objections***

**Claims 6, 11, and 18 are objected to because of the following informalities:**

Claim 6 recites the openings are “eccentrically” disposed on the center of the first electrodes. The Examiner recognizes this as a typographical error of the word, “essentially.”

Claim 11 recites, “a light emitting patterns.” The Examiner reads, “light emitting patterns.”

Claim 18 recites, “an edge portion of the insulation member is extended from the first region to the second region so as to form a substantially same interval between the openings.” The wordage of this limitation is imprecise. The Examiner understands from the instant disclosure that the openings continue into the second region and have substantially the same interval between the openings in the first region.

Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

**Claims 1, 15, 16, 18-20, 22, and 23 are rejected under 35 U.S.C. 102(b) as being anticipated by Kim et al (US PG PUB 20030111957: “Kim”).**

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Regarding claim 1, Kim discloses at least in figures 3, 4, and 19a-20 a display device comprising: a substrate (10) having a first region (inside area containing electrodes 12b best seen at fig. 19a) and a second region (outside region containing 14a) surrounding the first region; a plurality of first electrodes (12b) disposed in the first region; an insulation member (20) arranged in the first region and having a plurality of openings (not labeled, shown as square openings) that exposes a portion (12) corresponding to each of the first electrodes (12b); light emitting patterns (30) disposed on the first electrodes (12b), the light emitting patterns (30) filling up the openings, respectively; and a second electrode (14) disposed on the light emitting patterns (30).

Regarding claim 15, Kim discloses at least in figures 3, 4, and 19a-20 a display device comprising a substrate (10) having a first region (inside area containing electrodes 12b, best seen at fig. 19a) and a second region (outside region containing 14a) surrounding the first region (inside area containing electrodes 12b, best seen at fig. 19a); a plurality of first electrodes (12b) disposed in the first region (inside area containing electrodes 12b, best seen at fig. 19a); an insulation film (20), formed on the substrate (10) to cover the first electrodes (12b), having a plurality of first (inside, not labeled but best seen at fig. 20) and second (outside, not labeled but larger openings best seen in fig. 20) openings, the first openings exposing a portion (12) corresponding to each of the first electrodes (12b), the second openings disposed in the second region; light emitting patterns (30) disposed on the first electrodes (12b), the light emitting patterns (30) filling up the first openings, respectively; and a second electrode (14) disposed on the light emitting patterns (30).

Regarding claim 16, Kim discloses at least in figures 19a-20 a first width of the first openings is equal to or less than a second width of the second openings.

Regarding claim 18, Kim discloses at least in figures 18a-21c a method of manufacturing a display device comprising: forming a plurality of first electrodes (12b) in a first region (inside area containing electrodes 12b, best seen at fig. 19a) formed on a substrate (10); forming an insulation member (20) on the first region, wherein the insulation member has a plurality of openings (not labeled) each exposing a portion (12) corresponding to each of the first electrodes; forming light emitting patterns (30) on the first electrodes, respectively; and forming a second electrode (14) in the first region to cover the light emitting patterns.

Regarding claims 19 and 20, Kim discloses at least in figures 18a-21 wherein a conductive layer (16) including a transparent conductive material (ITO, see for example paragraph 12) is formed on the substrate (10) and the conductive material is patterned to form the first electrodes (12) in the first region.

Regarding claim 22, Kim discloses at least in figures 18a-21c, and paragraph 60 the insulation member (20) is formed by: forming an insulation layer on the first and second regions; and patterning the insulation layer to expose the first electrode in the first region and to remove portions of the insulation layer in the second region.

Regarding claim 23, Kim discloses at least in figures 18a-21c method of the claim 22, wherein the openings (not labeled) are essentially disposed on the center of the first electrodes (12b).

**Claims 1-7, 10, 15, 17-21, 25 and 26 are rejected under 35 U.S.C. 102(e) as being anticipated by Nakanishi et al (US PG PUB 20040070808: "Nakanishi").**

Regarding claim 1, Nakanishi discloses at least in figures 2, 4, and 5 a display device comprising: a substrate (20) having a first region (inside area of 3 best seen at fig. 8) and a second region (outside region of 3 best seen at fig. 8) surrounding the first region (inside area of 3); a plurality of first electrodes (23) disposed in the first region (inside area of 3); an insulation member (221b) arranged in the first region (inside area of 3) and having a plurality of openings (not labeled, shown as rectangular openings in fig. 5a) that exposes a portion (26) corresponding to each of the first electrodes (23); light emitting patterns (60) disposed on the first electrodes (23), the light emitting patterns (60) filling up the openings (not labeled), respectively; and a second electrode (50) disposed on the light emitting patterns (60).

Regarding claim 2, Nakanishi discloses at least in figure 3 and paragraphs 74-76 a plurality of dummy light emitting patterns (functional layer 110 in region 5) formed in the second region (outside area of 3) of the substrate (20).

Regarding claim 3, Nakanishi discloses at least in figure 2 the openings (not labeled) have a rectangular shape that has a pair of long sides (shown in Y axis direction in figure 2) and

a pair of short sides (shown in X axis direction in figure 2), and the openings (not labeled) are arranged in a matrix shape along a first direction that is substantially parallel with the long sides and a second direction that is substantially parallel with the short sides in the first region (inside area of 3).

Regarding claim 4, Nakanishi discloses at least in figures 2, 3, and 5 a side face (23a) of the insulation member is extended from the first region (inside area of 3) to the second region (outside area of 3) in the first direction and an extending length of the insulation member is equal to or less than a width formed between the openings (not labeled). The Examiner notes that no bounds have been given to “an external length,” (i.e. a length from the interface of the first and second region to the edge of the insulation member) therefore the Examiner has interpreted the bounds to be any arbitrary point at a distance less than a width formed between the openings.

Regarding claim 5, Nakanishi discloses at least in figures 3, 5, and 2 a side face of the insulation member is extended from the first region (inside area of 3) to the second region (outside area of 3) in the second direction, and an extending length is equal to or less than a width formed between the openings (not labeled). The Examiner notes that no bounds have been given to “an external length,” (i.e. a length from the interface of the first and second region to the edge of the insulation member) therefore the Examiner has interpreted the bounds to be any arbitrary point at a distance less than a width formed between the openings.



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Regarding claim 6, Nakanishi discloses at least in figures 5a and 5b the openings (not labeled) are essentially disposed on the center of the first electrodes (23), respectively.

Regarding claim 7, Nakanishi discloses at least in figures 5a and 5b and paragraph 80 that each of the light emitting patterns (110) includes a hole injection layer (70) and a light emitting layer (60), and the light emitting layer (110) is formed on the hole injection layer (70).

Regarding claim 10, Nakanishi discloses at least in paragraph 74 the insulation member includes an organic material, an inorganic material or a photoresist material.

Regarding claim 15, Nakanishi discloses at least in figures 3, 5, and 2 a display device comprising a substrate (20) having a first region (inside area of 3 best seen at fig. 8) and a second region (outside area of 3 best seen at fig. 8) surrounding the first region (inside area of 3 best seen at fig. 8); a plurality of first electrodes (23) disposed in the first region (inside area of 3 best seen at fig. 8); an insulation film (221b), formed on the substrate to cover the first electrodes (23), having a plurality of first (inside, not labeled but best seen at fig. 2) and second (outside, not labeled but in area 5 of fig. 3) openings, the first openings exposing a portion corresponding to each of the first electrodes (23), the second openings disposed in the second region (outside area of 3 best seen at fig. 8); light emitting patterns (110) disposed on the first electrodes (23), the light emitting patterns (110) filling up the first openings, respectively; and a second electrode (50) disposed on the light emitting patterns (110).

Regarding claim 17, Nakanishi discloses at least in figure 3 and paragraphs 74-76 a plurality of dummy light emitting patterns (functional layer 110 in region 5) are formed on the substrate corresponding to each of the second openings.

Regarding claim 18, Nakanishi discloses at least in figures 7a-7d a method of manufacturing a display device comprising: forming a plurality of first electrodes (23) in a first region (inside area of 3 best seen at fig. 8) formed on a substrate (20); forming an insulation member (221b) on the first region, wherein the insulation member has a plurality of openings (not labeled) each exposing a portion (not labeled) corresponding to each of the first electrodes; forming light emitting patterns (110) on the first electrodes, respectively; and forming a second electrode (50) in the first region to cover the light emitting patterns.

Regarding claims 19 and 20, Nakanishi discloses at least in figures 7a-7d a conductive layer (23) including a transparent conductive material (ITO, see for example paragraph 79) is formed on the substrate (20) and the conductive material is patterned to form the first electrodes (23) in the first region.

Regarding claim 21, Nakanishi discloses at least in figures 2, 3, 5, and 7a-7d the openings (not labeled) have a rectangular shape that has a pair of long sides (shown in Y axis direction in figure 2) and a pair of short sides (shown in X axis direction in figure 2), and the openings (not labeled) are arranged in a matrix shape along a first direction that is substantially parallel with

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the long sides and a second direction that is substantially parallel with the short sides in the first region (inside area of 3).

Regarding claim 25, Nakanishi discloses at least in figures 2, 3, 5, and 7a-7d and paragraph 129, a hole injection material (70) as a droplet shape is dropped on the first electrode (23) so as to form a hole injection layer of the light emitting patterns (110) and a light emitting material (60) as a droplet shape is dropped on the hole injection layer so as to form a light emitting layer of the light emitting patterns.

Regarding claim 26, Nakanishi discloses at least in figures 2, 3, 5, and 7a-7d a plurality of dummy light emitting patterns (functional layers in region 5 shown in fig. 3) are disposed in the second region.

The Examiner notes that the limitation, “to adjust a speed of drying the light emitting patterns” is an intended use type limitation. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

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***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakanishi in view of Nagayama et al (USPN 6137220: "Nagayama").**

Regarding claim 8, Nakanishi is silent to the exact angle of the inside wall of the openings.

However, Nagayama teaches at least in figure 2a, the abstract, and col. 5 lines 45-57 that an inside wall of the openings has an angle about 30° to 165° with respect to the first electrodes formed on the substrate, and this configuration allows organic EL material deposition method that prevents any ingress of moisture into the device.

Therefore, in view of the above discussion, it would have been obvious to one having ordinary skill in the art at the time the invention was made to construct the device of Nakanishi with the inside wall of the openings has an angle about 30° to 165° to allow for an organic EL material deposition method which prevents any ingress of moisture into the device.

Regarding claim 9, Nakanishi discloses at least in paragraphs 79 the first electrodes (23) include a transparent conductive material (ITO), but is silent to the second electrode (50) including an opaque conductive material.

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However, Nagayama teaches at least in col. 5, ll. 57-64 that using an opaque second electrode (made of aluminum) and a transparent first electrode (ITO) is a known electrode configuration. One would be motivated to this configuration to reflect light emitted from the EL layer off of the opaque electrode to exit the transparent electrode to improve light emitting efficiency.

Therefore, in view of the above discussion, it would have been obvious to one having ordinary skill in the art at the time the invention was made to construct the device of Nakanishi with the first electrode comprising a transparent conductive material and the second electrode including an opaque conductive material to improve light emitting efficiency.

*Allowable Subject Matter*

Claims 11-14 are allowed.

The following is an examiner's statement of reasons for allowance:

Regarding independent claim 11, the prior art fails to motivate or disclose a display device having the insulation member formed on the whole surface of the substrate with the groove formed between the first and second regions and the openings formed on the first electrode, in combination with the remaining limitations of the claim. Claims 12-14 are allowable due to their dependency.

Claim 24 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims, with proper correction of the above stated objection.

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The following is a statement of reasons for the indication of allowable subject matter:

Regarding independent claim 24, the prior art fails to motivate or disclose a display device having the openings continue into the second region and have substantially the same interval between the openings in the first region in combination with the remaining limitations of the claim.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### *Conclusion*

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter J Macchiarolo whose telephone number is (571) 272-2375. The examiner can normally be reached on 8:30 - 5:00, M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar Patel can be reached on (571) 272-2475. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

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applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Respectfully submitted,

By 

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